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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,582	POIRIER, BERTRAND	
	Examiner	Art Unit	
	Patrick F. O'Reilly III	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/15/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Copies of the certified copies of the priority documents have been received in this National Stage application.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on February 15, 2005 is acknowledged. The submission is in compliance with the provisions of 37 C.F.R. § 1.97 and 37 CFR § 1.98 and, therefore, the references therein have been considered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "one or motor speed sensing means" recited in claim 1, the "first speed sensing means positioned on the fresh air intake impeller" recited in claim 3, and the "second [temperature] sensing means positioned on the stale air intake" recited in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "160" (see e.g., page 12 of the specification, lines 6-7). In Figure 4 of the drawings, it appears that the "drain" is improperly denoted by reference character "10", rather than reference character "160".

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Proportional Control System for a Motor of an HVAC Unit".

7. The disclosure is objected to because of the following informalities:

On page 2 of the specification, in line 15, the word "parallelepiped" is misspelled "paraellpiped".

On page 7 of the specification, in line 1, the word "one" should be inserted between the word "enables" and the word "to".

On page 7 of the specification, in line 16, the word "worked" should be changed to the word "worker".

On page 7 of the specification, in line 17, the word "define" should be changed to the word "defined".

On page 8 of the specification, in line 29, the word "the", which is between the word "as" and the word "an", is superfluous and therefore, should be deleted.

On page 11 of the specification, in line 6, a period should be added immediately after the word "exchanger".

On page 11 of the specification, in lines 15, 16, 18, and 21, all occurrences of reference character "50", which immediately follow the component "stale air intake impeller", should be changed to reference character "60". The "stale air intake impeller" is denoted by reference character "60" throughout this disclosure.

On page 11 of the specification, in line 20, the word "then", which immediately follows the word "higher", should be changed to the word "than".

On page 11 of the specification, in line 26, a comma should be added immediately after the word "activated".

On page 12 of the specification, in line 1, both occurrences of the word "minutes" should be changed to the word "minute".

On page 12 of the specification, in line 5, the word "near" should be inserted between the word "located" and the word "the".

On page 12 of the specification, in line 6, the phrase, "…where defrost will be generated", should be corrected to read: "…where frost will be generated."

On page 12 of the specification, in line 25, the phrase, "…is greater or equal than to…", should be corrected to read: "…is greater than or equal to…".

On page 13 of the specification, in line 3, the word "one" should be inserted between the word "enables" and the word "to".

On page 13 of the specification, in line 14, the word "speed" should be changed to the word "speeds".

On page 14 of the specification, in line 7, the word "defrost" should be changed to the word "frost".

On page 14 of the specification, in line 32, the word "as", which immediately follows the word "temperature", should be changed to the word "has".

Appropriate correction is required.

Claim Objections

8. Claim 2 is objected to because of the following informality: in line 2 of this claim, the word "in" should be inserted immediately after the word "positioned". Appropriate correction is required.

9. Claim 5 is objected to because of the following informality: in line 2 of this claim, the word "an", which immediately precedes the word "HVAC", should be changed to the word "the". Appropriate correction is required.

10. Claim 6 is objected to because of the following informality: in line 7 of this claim, the word "determine" should be changed to the word "determines". Appropriate correction is required.

11. Claim 9 is objected to because of the following informality: in line 2 of this claim, the word "an", which immediately precedes the word "HVAC", should be changed to the word "the". Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. As to claim 1, the use of the limitation "wherein the temperature and motor speed sensors *determine* the motor speed to be applied during the defrost cycle (emphasis added)" renders this claim indefinite. One of ordinary skill in the art would not understand what is required by this aforesaid limitation because the *processing means* actually *determines* the motor speed to be applied during the defrost cycle and not, the temperature and motor speed sensors as recited. Consequently, this limitation should be rewritten using clearer language that unambiguously sets forth the scope of the claimed invention, such as "wherein the processing means determines the motor speed to be applied during the defrost cycle in response to an input signal from the temperature and motor speed sensors".

15. Claim 2 recites the limitation "the fresh air inlet intake" in line 2 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The "fresh air inlet intake" of the "HVAC unit" was not referred to in preceding claim 1, the claim upon which this claim depends. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "a fresh air inlet intake", rather than "the fresh air inlet intake" as recited.

16. Claim 3 recites the limitation "the fresh air intake impeller" in line 2 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The "fresh air intake impeller" was not referred to in preceding claim 1, the claim upon which this claim depends. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "a fresh air intake impeller", rather than "the fresh air intake impeller" as recited.

17. Claim 4 recites the limitation "a second sensing means" in line 1 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The independent claim on which this claim depends, namely claim 1, recites both a "motor speed sensing means" and a "temperature sensing means". Consequently, it is uncertain which of these two sensing means is being referred to in claim 4. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "a second temperature sensing means", rather than "a second sensing means" as recited.

18. Claim 4 also recites the limitation "the stale air intake" in line 2 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The "stale air intake" of the "HVAC unit" was not referred to in preceding claim 1, the claim upon which this claim depends. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "a stale air intake", rather than "the stale air intake" as recited.

19. Claim 5 recites the limitation "the air inlet intake" in line 2 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The "air inlet intake" of the "HVAC unit" was not referred to in preceding claim 1, the claim upon which this claim depends. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "an air inlet intake", rather than "the air inlet intake" as recited.

20. Claim 6 recites the limitation "the temperature sensing means" in line 7 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The "temperature sensing means" was not previously referred to in the preceding lines of this claim. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "a temperature sensing means", rather than "the temperature sensing means" as recited.

21. Claims 7 and 9 recite the limitation "the air inlet intake" in line 2 of each claim. There is an insufficient antecedent basis for this limitation in each of these two claims. The "air inlet intake" of the "HVAC unit" was not referred to in preceding claim 6, the claim upon which both of these claims depend. For the purpose of an examination on the merits, the examiner has considered this as a recitation to "an air inlet intake" in each claim, rather than "the air inlet intake" as recited.

22. Claim 9 recites the limitation "a damper mechanism" in line 1 of this claim. There is an insufficient antecedent basis for this limitation in the claim. The independent claim on which this claim depends, namely claim 6, has already recited "a damper mechanism". Consequently, it is uncertain whether the "damper mechanism" recited in claim 9 is intended to refer to the "damper mechanism" recited in claim 6, or alternatively, is intended to refer to an entirely different "damper mechanism". For the purpose of an examination on the merits, the examiner

has considered this as a recitation to "the damper mechanism" (i.e., referring to the damper mechanism of claim 1), rather than "a damper mechanism" as recited.

23. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being dependent on a rejected base claim.

Claim Rejections - 35 USC § 102

24. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

25. **Claims 6-7 and 9** are rejected under 35 U.S.C. 102(b) as being anticipated by Haglid (US 6,176,305). The specification and the drawings in the Haglid reference disclose all of the elements recited in **claims 6-7 and 9** of this application.

26. Specifically, in regard to claim 6, the Haglid reference discloses all of the claimed elements, including: (a) a processing means (microprocessor 96) programmed with an air exchange-defrost cycle (see col. 5, ln 66-67; col. 6, ln 1-32); (b) one or more sensing means (e.g., temperature sensor 88) positioned in the HVAC unit (14) and operatively connected to the processing means (96); and (c) a damper mechanism (louver 72, 74) positioned in the HVAC unit (14); wherein a temperature sensing means (temperature sensor 88) determines the motor speed to be applied during the defrost cycle (when heat exchanger 16 freezing conditions are detected by the temperature sensor 88, the defrost operation is initiated wherein the speed of the outside air fan 26 is reduced, while the speed of the exhaust fan 28 is left at its original maximum speed, thereby reducing the cooling of the heat exchanger 16 and allowing the warmth of the

exhaust air to melt the ice in the heat exchanger 16 and bring its temperature up to above the freezing level). Refer to Haglid, Figures 1-4; column 3, lines 42-54; column 5, lines 65-67; column 6, lines 1-32; column 7, lines 60-67; and column 8, lines 1-7. Therefore, because all of the elements in claim 6 of this application are disclosed by the Haglid reference, this claim is rejected in accordance with 35 U.S.C. 102(b).

27. In regard to claim 7, Haglid further discloses that a first temperature sensing means (temperature sensor 86) is positioned in an air inlet intake (outside air inlet duct 18) of the HVAC unit (14). See Haglid, Figure 1 and column 3, lines 17-20 and 42-54. Thus, Haglid meets the language of this claim.

28. In regard to claim 9, Haglid further discloses that the damper mechanism (louver 72) is installed in an air inlet intake (outside air inlet duct 18) of the HVAC unit (14). Refer to Haglid, Figure 1; column 3, lines 17-20; and column 5, lines 48-49. Consequently, the Haglid reference also meets the language set forth in claim 9.

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30. **Claims 1-2, 4-5, and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Haglid (US 6,176,305) in view of Hollenbeck et al. (US 5,692,385). These two references, when

considered together, teach all of the elements recited in **claims 1-2, 4-5, and 8** of this application.

31. In particular, claim 1 of this application is obvious when Haglid is viewed in light of Hollenbeck et al. Haglid discloses the invention substantially as claimed, including: (a) a processing means (microprocessor 96) programmed with an air exchange-defrost cycle (see col. 5, ln 66-67; col. 6, ln 1-32); (b) one or more temperature sensing means (e.g., temperature sensor 88) positioned in the HVAC unit (14) and operatively connected to the processing means (96); wherein the one or more temperature sensors (temperature sensor 88) determines the motor speed to be applied during the defrost cycle (when heat exchanger 16 freezing conditions are detected by the temperature sensor 88, the defrost operation is initiated wherein the speed of the outside air fan 26 is reduced, while the speed of the exhaust fan 28 is left at its original maximum speed, thereby reducing the cooling of the heat exchanger 16 and allowing the warmth of the exhaust air to melt the ice in the heat exchanger 16 and bring its temperature up to above the freezing level). Refer to Haglid, Figures 1-4; column 3, lines 42-54; column 5, lines 65-67; column 6, lines 1-32; column 7, lines 60-67; and column 8, lines 1-7.

However, claim 1 of this application further discloses one or more motor speed sensing means positioned in the HVAC unit and operatively connected to the processing means, wherein the motor speed sensors also determine the motor speed to be applied during the defrost cycle. Haglid does not contain these additional limitations.

Hollenbeck et al., although, teaches a refrigeration system defrost cycle having one or more motor speed sensing means (in sensing circuit 216) provided on an evaporator motor (120) and operatively connected to a processing means (including motor control 208 – Fig. 2), wherein

the motor speed sensors (216) emit a signal for initiating the defrost cycle, during which time the motor speed decreases steadily decreases (as indicated by SD in Fig. 3B) as frost and ice are melted from the heat exchanger, for the purpose of maintaining a substantially constant system airflow rate so as to provide a highly efficient system. See Hollenbeck et al., Figures 2 and 3B; column 2, lines 4-7; column 5, lines 63-67; column 6, lines 1-34 and 55-67; and column 7, lines 1-45. Therefore, when Haglid is viewed in light of Hollenbeck et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the HVAC unit (14) of Haglid by adding motor speed sensors (216) operatively connected to the processing means (96) that emit a signal for initiating the defrost cycle, as taught by Hollenbeck et al., in order to enable the defrost cycle to be activated by both a threshold temperature and a motor speed so as to provide a highly efficient ventilation system by accurately detecting, and removing accumulated frost on the heat exchanger. Refer to Hollenbeck et al., column 2, lines 4-7. When the motor speed sensors of Hollenbeck et al. are added to the HVAC unit of Haglid, the motor speed sensors inherently determine the motor speed to be applied during the defrost cycle because the microprocessor in Haglid automatically reduces the speed of the outside air fan upon the initiation of the defrost cycle.

32. In regard to claim 2, Haglid further discloses that a first temperature sensing means (temperature sensor 86) is positioned in a fresh air inlet intake (outside air inlet duct 18) of the HVAC unit (14). See Haglid, Figure 1 and column 3, lines 17-20 and 42-54. Therefore, Haglid in view of Hollenbeck et al. also renders the limitations set forth in claim 2 obvious.

33. In regard to claim 4, Haglid further discloses that a second temperature sensing means (temperature sensor 84) is positioned in a stale air intake (exhaust inlet duct 22) of the HVAC

unit (14). Refer to Haglid, Figure 1 and column 3, lines 21-25 and 42-54. Consequently, Haglid in view of Hollenbeck et al. also renders the limitations set forth in claim 4 obvious.

34. In regard to claim 5, Haglid further discloses that a damper mechanism (louver 72) is installed in an air inlet intake (outside air inlet duct 18) of the HVAC unit (14). See Haglid, Figure 1; column 3, lines 17-20; and column 5, lines 48-49. Thus, Haglid in view of Hollenbeck et al. also renders the limitations set forth in claim 5 obvious.

35. Moreover, claim 8 of this application is obvious when Haglid is viewed in light of Hollenbeck et al. As described above, Haglid discloses all the elements of base claim 6, the claim upon which this claim depends. However, claim 8 of this application further discloses that a motor speed sensor is incorporated within the processing means. Haglid does not contain this additional limitation. Hollenbeck et al., although, teaches a refrigeration system defrost cycle having one or more motor speed sensing means (in sensing circuit 216) provided on an evaporator motor (120) and incorporated within a processing means (including motor control 208 – Fig. 2), wherein the motor speed sensors (216) emit a signal for initiating the defrost cycle, during which time the motor speed decreases steadily decreases (as indicated by SD in Fig. 3B) as frost and ice are melted from the heat exchanger, for the purpose of maintaining a substantially constant system airflow rate so as to provide a highly efficient system. See Hollenbeck et al., Figures 2 and 3B; column 2, lines 4-7; column 5, lines 63-67; column 6, lines 1-34 and 55-67; and column 7, lines 1-45. Therefore, when Haglid is viewed in light of Hollenbeck et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the HVAC unit (14) of Haglid by adding motor speed sensors (216) incorporated within the processing means (96) that emit a signal for initiating the defrost

cycle, as taught by Hollenbeck et al., in order to enable the defrost cycle to be activated by both a threshold temperature and a motor speed so as to provide a highly efficient ventilation system by accurately detecting, and removing accumulated frost on the heat exchanger. Refer to Hollenbeck et al., column 2, lines 4-7.

36. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Haglid (US 6,176,305) in view of Hollenbeck et al. (US 5,692,385) as applied to claim 1 above, and further in view of Bahner et al. (US 6,241,463). These three references, when considered together, teach all of the elements recited in **claim 3** of this application.

37. In particular, claim 3 of this application is obvious when Haglid is viewed in light of Hollenbeck et al., and further viewed in light of Bahner et al. As described above, Haglid, as modified by Hollenbeck et al., teaches all the elements of base claim 1, the claim upon which this claim depends. However, claim 3 of this application further discloses that a first speed sensing means is positioned on a fresh air intake impeller. Haglid, as modified by Hollenbeck et al., does not contain this additional limitation. Bahner et al., although, teaches a radial fan (1) having a speed sensing means (rotational speed sensor 36) positioned on the impeller thereof for the purpose of accurately measuring the rotational speed of the fan without the need for external sensor hardware. Refer to Bahner et al., column 1, lines 52-60 and column 6, lines 32-38. Therefore, when Haglid is viewed in light of Hollenbeck et al., and further viewed in light of Bahner et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the HVAC unit (14) of Haglid in view of Hollenbeck et al. by providing the impeller of the fresh air intake fan (26) with a first speed sensing means disposed

thereon, as taught by Bahner et al., in order to accurately measure the rotational speed of the fan without the need for external sensor hardware. See Bahner et al., column 1, lines 52-60.

Conclusion

38. See attached form PTO-892 for additional pertinent prior art, which was not directly relied upon in this action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick F. O'Reilly III whose telephone number is (571) 272-3424. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. O'Reilly III/
Examiner, Art Unit 3749

/Steven B. McAllister/
Supervisory Patent Examiner, Art Unit 3749